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CONTENTS:

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RHODORA INDEX; REQUEST FOR CORRECTIONS.—A cumulative index to the first fifty volumes of Rhodora is being prepared. Any user of RHODORA who has noted errors in the indices to the various volumes will greatly aid in the enterprise by sending the corrections to the EDITORS.

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JOURNAL OF

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Vol. 50. March, 1948. No. 591.

BLEPHILIA CILIATA (L.) BENTH.

H. A. Gleason

In the process of altering generic limits, which necessarily entails a relocation of species, botanical writers have often neglected to make the new binomials. Well known instances are to be found in Bentham and Hooker's Genera Plantarum, where the necessary binomials are almost entirely omitted. Nevertheless, they appear in the Index Kewensis as if they had been made and are credited to Bentham and Hooker. According to a common custom, we still credit them to these men but cite the Kew Index as the place of publication.

It is only an assumption on our part when we write B. &. H. as the authority. How do we know whether they would have used these specific epithets or not? Our assumption, based on other experience with Bentham or Hooker, is probably correct, but the fact remains that they did not make the transfer and that Jackson did it for them.

Blephilia ciliata illustrates another instance of a citation based on an assumption. It is and has been regularly cited to (L.) Raf. in all recent standard works. Before double citations came into vogue it was referred directly to Rafinesque. Its history is simple.

The genus *Blephilia* was established by Rafinesque in 1819 in a long critique of Nuttall's Genera. He wrote: "7. *Monarda ciliata* must form a new genus, which we call *Blephilia*, distinguished by an unequal calyx." This sentence may be accepted

as a foundation for the genus and for the designation of *M. ciliata* as its type species, but the binomial *B. ciliata* does not appear.

During the next fourteen years Eaton and Torrey refused to recognize the genus and maintained one or the other of its two species under *Monarda.*

In 1833 Bentham took up *Elephilia* in his monograph of the Labiatae and admitted as one species *B. ciliata,* which he credited to Rafinesque in the Jour. de Physique, etc. Here is the full text of Rafinesque's statement in that place: "Le type de ce genre est la *Monarda ciliata,* Linn." Again the binomial does not appear.

Bentham's reasoning is easily understood by us, since we frequently adopt it ourselves. He merely concluded that Rafinesque would have used the epithet *ciliata,* but simply did not, possibly not considering it necessary. Rafinesque has always been considered an eccentric or erratic botanist; could Bentham read his mind correctly? Let us see.

I do not know that Rafinesque mentioned the genus again during the thirteen years following its sketchy publication. But in 1832 he published in the Atlantic Journal (p. 146) a criticism of some of Torrey's work, in which appears this brief statement: "*Blephilia becki* Raf. *monarda ciliata* T." Here he definitely showed that he had no intention of using *ciliata* as the specific epithet for the plant.

In 1838 appeared the last part of Rafinesque's New Flora, with two new species of *Blephilia* actually described. Under the first one, *B. brevipes,* he says: "One of the sp. blended in *Monarda hirsuta,* the real sp. is my *Bl. nepetoides,* a 3d is the next." The next was his second new species, *B. lanceolata.* Note that the "real" species in the original *M. hirsuta* is "my *Bl. nepetoides;*" he changed its specific name. By "blended" he clearly meant the mixture of three species under one name; in sorting them out he made new names for all of them. Then he goes ahead to say, in almost identical words: "There are also 3 sp. blended in *Monarda ciliata,* my *Bl. pratensis, brevifolia* and *heterophylla.*" Clearly and obviously, Rafinesque intended to give new names to all three, again discarding *ciliata* as completely as he had discarded *hirsuta* in the preceding sentence.

Bentham's assumption of Rafinesque's intention was therefore erroneous. So are our assumptions when we credit this binomial to him. He never made it and disclaimed intention of making it. The correct citation for our familiar plant is (L.) Benth.

Incidentally, it may be mentioned that *B. hirsuta* is credited to Torrey by Britton & Brown, Small, and Rydberg. As a matter of fact, Torrey used the name *Monarda hirsuta* for the species; the combination *B. hirsuta* does not appear, and the genus *Blephilia* is cited only as a synonym. The citation in Gray's Manual as (Pursh) Benth. is correct.

All of this serves to bring up the general question as to how far we may go in using the name of another botanist in making or transferring names. May I describe a species and credit it to Linnaeus, on the assumption that he would have considered it a species and would have selected this epithet for it if he had ever known the plant? It would certainly gratify my vanity to read the citation *Miconia ficta* L. ex Gl. and it would open a way for scores of our modern precisionists to show their intimate spiritual communion with the past masters of botany.

Now I have taken one of the old masters into partnership and have described a few species of melastomes which I have accredited to Cogn. and Gl., although Cogniaux had been dead a quarter of a century. But the circumstances were different. Here was a sheet of preserved specimens, on which Cogniaux had noted the plant as a "sp. nov.," often with a specific name also added. When I examined the same plant I agreed that it was undescribed; I proceeded to draw up and publish a description, using Cogniaux's name for it, but adding my own name to his in the citation, since I was alone responsible for the wording of the description and for remarks on the probable relationship of the plant to other species.

It seems to me that we have no right to attribute a new name or a new combination to another author unless we have clear and indisputable evidence of his intentions. I regret saying this, because it might easily induce some of our professional nomenclaturists to search the literature for combinations made on assumptions similar to those of Bentham, and to make new names accordingly.

The New York Botanical Garden

A VIRGINIAN PELTANDRA

M. L. Fernald

In Rhodora, xlii. 360 and 430–432, plate 627 (1940), I pointed out the many striking characters which distinguish a species of *Peltandra* of bottomlands and wooded swamps of southeastern Virginia, thence locally southward (characteristic material before me from upland Georgia and from Florida). Whereas the common and wideranging *P. virginica* (L.) Schott & Endl. has the green or barely pale-bordered undulate-margined spathe tightly inrolled around the white or whitish spadix with staminate flowers usually extending to the tip, the plant of Prince George and Sussex Counties (presumably in adjacent counties) of southeastern Virginia has the limb of the spathe green only near the middle of the back, the open to spreading white border 1–1.7 cm. wide each side of the middle band, the orange-yellow spadix exposed and with the terminal 1–3 centimeters naked. The spathe of *P. virginica* at anthesis is (1.1–)1.3–2.5 dm. long, in the plant of southeastern Virginia 0.9–2 dm. long. In *P. virginica* the lower fourth of the flowering spathe is continuous with the limb, the latter in fruit rotting away and persisting as a beak-like remnant at the summit of the fruiting spathe which is 3–6 cm. long[1]. In the problematic plant of southeastern Virginia there is a strong constriction or stoutish neck at the base of the flaring limb, this constricted portion soon deliquescing and by circumscission leaving a truncated fruiting spathe 5.5–8 cm. long. In *P. virginica* the thoroughly dried green to amber berries are 6–12 mm. long; in the southeastern Virginian plant 1–1.5 cm. long. In short, the two species are in almost every character distinct but, whereas the leaf-blade of *P. virginica* is excessively variable, that of the new species is relatively constant in outline. At one station of the latter, along a woodland creek, where Long and I were collecting the plant, a game-warden stopped his car to investigate

[1] *Peltandra Tharpii* Barkley in Madroño, vii. 131, t. 21 (fig. at left) (1944) was separated as a new Texan species because of its "scapes . . . recurving; spathe green, 3.5–4 cm. long, 1.5–2.5 cm. broad, completely enveloping the spadix". As shown by his illustration, the description was based on a *fruiting* plant with the regularly recurving scape, and the lower fourth of the original spathe, the small insert showing the characteristic short beak of the fruiting spathe of *P. virginica*. The leaves, as shown in the plate and in an isotype before me, are those of *P. virginica*, forma *hastifolia* Blake in Rhodora, xiv. 105, t. 94, fig. 3 (1912).

the obvious poaching going on within sight of the road. When we showed him the collection of white spathes with the orange-yellow spadices, suggesting miniature calla-lilies, his prompt and rather contemptuous reply was simply: "Oh! gathering water-lilies!" Nobody would think of so denominating the tight green and far from ornamental spathes of *P. virginica.*

When I described and illustrated this novel plant of south-eastern Virginia, being then completely overwhelmed by the mass of detailed study in all directions before I could satisfactorily answer the thousands of insistent queries, "How soon will the Manual be done?" (each accompanied by some such note as "I am inclosing a stamped envelope; please send me a list of all the changes you are making. I need them by the end of next week"), I tried to pass this problem over to others, writing: "If someone will volunteer to collate the material and reach a decision I shall be greatly relieved". But the boomerang returns. After eight years, having had no relief, not even a post-card on the subject, it is necessary to spend four days clearing the problem myself. Fortunately, Rafinesque's nine reputed species seem to contain nothing which can definitely be associated with the plant with white limb and golden spadix. The only one of them which might have to be considered is *P. Walteri* (Ell.) Raf. New Fl. N. Am. i. 88 (1836):

> 7. Peltandra Walteri Raf. Arum sagittifolium Walter, Arum Walteri Elliot. Leaves triangular sagittate, angles divaricate acute. In Carolina, not well described, but very near *P. latifolia*, said to be larger than *P. hastata* with similar flowers.

Rafinesque's diagnosis was surely copied directly from Elliott's ("not well described") very brief one of his *Arum* "Walteri?", based on *A. sagittifolium* sensu Walt., not L. Furthermore, Elliott was separating it from *A. virginicum*, which had "*Spathe* . . . slightly repand or undulate along the margin, closely embracing the spadix", only by the shape of the leaf, for "In the spathe and spadix I have noticed no difference". In other words, *Peltandra Walteri* was nothing but one of the many leaf-forms of *P. virginica.*

As to the identity of the basic *Arum virginicum* L. Sp. Pl. 966 (1753), the diagnosis was the briefest and most inconclusive possible:

virginicum. 13. ARUM acaule, foliis hastato-cordatis acutis: angulis obtusis. *Hort. cliff.* 434 [*i.e.* 435]. **Gron. virg.* 112.
Habitat in Virginia. ♃

Hortus Cliffortianus gives nothing more clarifying. The leaf of the *Clayton* plant, no. 228, described by Gronovius and preserved at the British Museum of Natural History, is of the typical form of *Peltandra virginica* as interpreted by Blake in Rhodora, xiv. 104 (1912), but the "pene viridi" of Clayton's account, following the Gronovian diagnosis, can have been based only on the green spathe tightly rolled around the spadix. The identity of *P. virginica* seems to be clear. I do not now hesitate to describe

Peltandra **luteospadix,** sp. nov., *P. virginicae* similis; spathae margine lacteo expanso 1–1.7 cm. lato; spadice luteo apice sterili; limbo deinde circumscissile, spatho fructifero truncato 5.5–8 cm. longo; fructibus siccatis 1–1.5 cm. longis.—*P. virginica*, southern representative, Fernald in Rhodora, xlii. 360, 430, tab. 627 (1940), where essential characters are noted. Type from bottomland-swamp, Nottoway River, southwest of Homeville, Sussex County, Virginia, June 18, 1939, *Fernald & Long*, no. 10,179 in Herb. Gray; isotype in Herb. Phil. Acad. Other numbers from Virginia, of which duplicates were sent to various herbaria, are: Sussex Co.: Three Creek, southwest of Grizzard, no. 10,176; Jones Hole Swamp, west of Coddyshore, nos. 10,177 and 11,279; Assamoosick Swamp, northeast of Homeville, no. 10,178. Prince George Co.: Powell's Creek, Garysville, no. 8178. From farther south are the following: Booth's Bottoms, near Sandy Creek, near Athens, Georgia, *Perry, Strahan & Sublett*, no. 797. Florida, without further data, *Chapman*.

Although more clearly related to *Peltandra virginica* in its large green leaves, large and somewhat coriaceous spathe, coarse and long spadix and large green or greenish berries, *P. luteospadix* shares some characters with the southern *P. sagittifolia* (Michx.) Morong.[1] The latter, however, is a relatively small plant, with

[1] Unfortunately, through the bibliographic method of the original *Index Kewensis* and those who have followed it, this little southern species appears in Small's and other works as *Peltandra glauca* (Ell.) Feay, with the synonyms "*P. alba* Raf. *P. sagittifolia* (Mich.) Morong not Raf." To be sure, *Index Kewensis* gives under *Peltandra* the entry: "*sagittaefolia* Rafin. in Journ. Phys. lxxxix. (1819) 102 = Xanthosoma sagittaefolium"; but, had Small taken the trouble to look up the reference to Rafinesque, he would have found no such combination there made. Michaux, Fl. Bor.-Am. ii. 187 (1803) clearly described the small southern species as *Calla sagittifolia*, with no reference whatever to the wholly different *Arum sagittifolium* Walt.

small glaucous leaves and much smaller spathe, spadix and red berries. The very thin white blade of the spathe is white throughout and not nearly as long as in *P. luteospadix*, but the base of the blade is constricted or forming a neck, and the small spadix is yellow. Although it is conceivable that *P. luteospadix* arose in the far-distant past through crossing of *P. virginica* and *P. sagittifolia*, the northern limit of the latter seems to be in Onslow County, North Carolina, fully 140 miles south of the concentrated area of the constant and freely fruiting *P. luteospadix* in southeastern Virginia. In the latter region the new species flowers later than does *P. virginica* in other parts of eastern Virginia and North Carolina. The freshly flowering material of *P. luteospadix* was collected after the middle of June. The freshly flowering material of *P. virginica* from Virginia and eastern North Carolina before me shows a flowering period there beginning in late April or early May.

(see above) nor to the tropical American *Arum sagittaefolium* L. Sp. Pl. 966 (1753) which is generally considered to belong to *Xanthosoma* (I decline to sidetrack myself into untangling the nomenclature there; *Index Kewensis* gives citations for three species called by the editors *X. sagittifolium*). Ventenat in Roemer, Arch. ii[3]: 347 (1801—the title-page date, although *I. K.* says 1800), took up the genus *Caladium*, which, shortly before, he had defined in his Descr. Pl. Jard. Cels. t. 30 (1801), and on p. 351 he had a species, *C. sagittaefolium*, based on Jacquin, Hort. Bot. Vindob. (73) t. 157 (1770), Jacquin correctly calling the plant, beautifully illustrated, *Arum sagittaefolium* L. and stating that it came from tropical America. It is a *Xanthosoma*. The first reference in *Index Kewensis* under this *Caladium sagittaefolium* is "Vent. Jard. Cels. sub t. 30", followed by the correct reference for the binomial, "et in Roem. Arch.", etc. The latter reference leads directly to a discussion by Ventenat of the genus and to the binomial; but the former reference leads to the mere citation of a list of 8 species of *Arum* which, in addition to the properly combined *C. bicolor* (Ait.) Vent., constitute the genus. The binomial was not there made. Now, returning to the reputed *Peltandra sagittaefolia* or *sagittifolia* "Rafin". of *Index Kewensis* and of Small, it is clear that Rafinesque made no such combination in the place cited; it was wrongly ascribed to him by the editors of *I. K.* Rafinesque, discussing his genus *Peltandra* in Journ. Phys. lxxxix. 103 (not 102 as given by *I. K.*), simply said: "Les *Calladium sagittaefolium* et *C. virginicum* se rapportent à ce genre; mais je le base sur une nouvelle espêce *P. undulata*", which was described in some detail from "État de New-York" and is inseparable from *P. virginica* (L.) Schott & Endl. *Caladium sagittaefolium*, cited by Rafinesque, was, of course, the tropical American *Xanthosoma* and had nothing to do with *Calla sagittifolia* Michx. As I understand the nomenclature of the latter it is as follows:

Peltandra sagittifolia (Michx.) Morong in Mem. Torr. Bot. Cl. v. 102 (1894), as *sagittaefolia*. *Calla sagittifolia* Michx. Fl. Bor.-Am. ii. 187 (1803). *Arum sagittifolium* (Michx.) Pursh. Fl. Am. Sept. 299 (1814), not *A. sagittaefolium* L. *Caladium sagittifolium?* Nutt. Gen. ii. 222 (1818), not *C. sagittaefolium* (L.) Vent. *Caladium glaucum* ? Ell. Sk. ii. 631 (1824). *P. alba* Raf. New Fl. N. Am. i. 88 (1836). *Xanthosoma sagittifolium* sensu Chapm. Fl. So. U. S. 441 (1860), not Schott. *P. glauca* (Ell.) Feay ex Wood, Class-bk. 669 (1861).

A HYBRID BETWEEN SHAGBARK AND BITTERNUT HICKORY IN SOUTHEASTERN VERMONT

Wayne E. Manning

In the fall of 1944, while searching for sweet pignut south of Brattleboro, Vermont, I found a large tree whose 4-valved fruit looked like *Carya ovalis*. The bud-scales of one of four small trees at the base of the large one were, however, valvate as in *C. cordiformis*, but brown as in *C. ovalis*. This group of trees appears to be the hybrid × C. Laneyi Sarg. var. chateaugayensis Sarg. between *C. cordiformis* and *C. ovata*, though it is very close to × *C. Demareei* Palmer (Journ. Arn. Arb. **18**: 135–136, 1937), a hybrid between *C. ovalis* and *C. cordiformis*.

Collections have been made of fall condition, fruit, winter buds, opening buds, and early summer condition of the trees; a specimen has been deposited at the Arnold Arboretum.

The trees are growing on a rocky wooded hillside 60 feet above state road number 30 on its western side, 7 miles north of the Mass.-Vermont line, and 2 miles north of the dam at Vernon, Vermont. A large tree of characteristic *C. cordiformis* is growing 50 feet north of the hybrid, and a fallen one is close to the hybrid. A small tree of *C. ovata* is located about 300 ft. further north. No tree of *C. ovalis* was observed near by, but a thorough search has not been made; furthermore, many of the original trees have been removed by hurricane, fire, and cutting. Pignuts, probably *C. ovalis*, have been reported growing along the Connecticut River in Vermont as far north as Bellows Falls.

The central tree of the cluster is large, about 60 feet high, with rather flattened lower trunk, 12 inches diameter one way, 16 the other, this trunk forking 10 feet above the ground into two large trunks. The first horizontal branches are 20 feet above the ground. The bark of most of the upper part of the trunk is light gray and smooth; on the lower part it is slightly roughened with shallow diamond-shaped areas as in young trees of *Fraxinus americana* or in *C. cordiformis*. The four small trees around the larger one are probably root suckers from the main tree; the root of one of the former is clearly connected with a strong root of the larger tree.

The leaflets are usually 7 in number, occasionally 5, narrow, without tufts of hairs on the serrations such as those that occur

in *C. ovata*, essentially glabrous; small clusters of hairs occur frequently in the axils of the side veins on the lower surface, and scattered solitary hairs occur on some strong side veins. The terminal buds are much larger than the lateral ones, being about 9–12 mm. long, ovate-lanceolate, with a long drawn out point much as in *C. cordiformis;* this tip is frequently curved. The consistency and general shape of the outermost bud-scales still remaining by late August are much the same as in the bitternut hickory, but greenish brown in color, ovate-lanceolate, rather thick, barely acute, longer than the inner scales; one or both outer scales may fall off by November, exposing the finely grayish hairy inner scales. The outermost brown hardened bud-scales with narrow hairy tips found in *C. ovata* and *C. ovalis* are absent. There is a total of about six bud-scales; both inner and outer ones have few to several scattered yellow glands. The lateral buds are small, tight, greenish to yellowish brown, becoming shining chestnut brown, quite different in appearance from either *C. cordiformis* or *C. ovalis*. The bud-scales are valvate, coriaceous, the two exposed ones meeting along a line in front and back, frequently with a raised ridge at the junction of the bud-scales along the back of the bud. The bud-scales have several to many yellow glands on the surface, but the general color is not yellow. On some twigs in certain years when the terminal bud is absent because of development of flowers, the buds all seem small and chestnut brown, and the buds resemble those of × *C. Demareei*. Opening lateral buds (in a pseudoterminal position) show usually two pairs of bud-scales, the outer ones persistent, remaining small and brown, the inner ones somewhat accrescent, becoming comparatively short, broad, rather thin, obtuse, green (up to 17–20 mm. × 4–7 mm.). The bud-scale scars, on branches developed from lateral buds, show two sets of opposite, comparatively high, essentially glabrous scars much as in *C. cordiformis*. Opening terminal buds were not observed; few terminal buds seemed to mature during the season of 1944, at least on the branches seen by the writer. Bud-scale scars on branches developed from terminal buds show about six scars, rather close, but each scar is distinct, comparatively high, much as in *C. cordiformis*, and not forming a ring of much crowded narrow indefinite lines as in *C. ovata*. The fruit is medium, 4-valved almost to the base, the valves rather thin, 1–1½ mm. thick,

rough, warty, somewhat wing-margined. The nut is rather ovate, flattened, not ridged or slightly ridged to near the base, rather truncate at base with a central depression, drawn out at the apex as in *C. cordiformis*, the shell somewhat thicker than that of this species (1 mm.) with a small cavity in each of the four dorsal internal ridges. The meat is corrugated as in that of *C. cordiformis*, and presumably bitter. This is to be expected, with a tree of *C. cordiformis* near by.

In the sweet pignut the outer bud-scale of the lateral buds is sac-like, probably formed by the fusion of two lateral scales, usually shorter than the bud, open in front or often at the top exposing the inner grayish tomentose scales; there are 3 or more "pairs" of scales, the outer persistent, the inner accrescent, becoming long, broad, thin, green. In the shagbark the lateral buds may be similar to those described for the pignut, or the inner bud-scales may be exposed, the outer bud-scales being much shorter than the bud; the bud-scales are strongly accrescent, becoming large, prominent and petaloid. In both the sweet pignut and the shagbark the nut lacks cavities in the shell or the outer parts of the partitions. In *C. cordiformis* there is usually only one pair of exposed yellow bud-scales, the bud-scales becoming in the spring rather elongate, narrow, recurved; the cross section of the nut shows a large dark brown cavity in each of the four dorsal internal ridges.

Thus the general aspect of the hybrid in spring and summer is that of *C. cordiformis*, with its smooth bark and 7 narrow leaflets, but the buds are not yellow. In the fall and winter the color of the buds and the roughness and dehiscence of the fruit resemble these features in *C. ovalis*, but the bud-scales are valvate, and the terminal buds are slender and long-pointed. In size the buds resemble those of *C. ovata*. The opening lateral buds are intermediate between the conditions in *C. ovata* or *C. ovalis* and *C. cordiformis*, but are nearer to those of the last species.

Previous collections of × *C. Laneyi* and its variety *chateauguayensis*, as represented at the Arnold Arboretum, are from Summertown, Ontario; Chateauguay, Quebec; Rochester, N. Y; Lancaster, Pa.; Millerstown, Pa.

Bucknell University,
Lewisburg, Pennsylvania

A NEW SPECIES OF EUPHORBIA FROM OKLAHOMA

U. T. Waterfall

While botanizing the Waynoka sand dunes in northwestern Oklahoma the author recently collected a prostrate *Euphorbia* unlike any species with which he was familiar. It is evidently in the subgenus *Chamaesyce* as defined by Wheeler, but is like none of the species included in his monograph[1]. It seems to be a quite distinct species characterized by its large glabrous angular fruits, long smooth roundish seeds with large caruncles, and its dimorphic involucres.

Euphorbia carunculata sp. nov. Planta annua, glabra, decumbens, ramosa; foliis oppositis, laminis integris, elliptico-ovatis (ca. 1.3 cm. longis et 0.6–0.8 mm. latis) vel oblongo-spatulatis et minoribus, petiolis 3–6 mm. longis; stipulis lanceolatis vel lineari-lanceolatis, integris vel 2–3-partitis, segmentis linearibus vel lineari-subulatis; involucris dimorphis: (1) involucris cylindro-obconicis (ca. 3 mm. longis, 0.8 mm. latis ad basin et 1.0–1.2 mm. ad apices), lobis fimbriato-ciliatis, glandulis 4, ca. 3 mm. latis, exappendiculatis, antheris abortivis; (2) involucris hemisphaericis vel hemisphaerico-campanulatis; lobis fimbriato-ciliatis; glandulis 4, stipitatis, appendiculatis; glandulis cum appendiculis 1.3–1.5 mm. longis, 0.8–1.5 mm. latis; appendiculis albis, ca. 1 mm. longis; staminibus fertilibus; capsulis glabris angularibus, 5–6 mm. longis, 4–5 mm. latis; stylis 0.5–0.6 mm. longis, bilobis, lobis ca. 0.2 mm. longis; seminibus non-angularibus, laevibus, 3.8–4.5 mm. longis, ca. 2 mm. latis, carunculis attenuatis, 0.5 mm. vel 0.8 mm. longis.

Euphorbia carunculata n. sp. Plant annual, decumbent; stems branched, glabrous, somewhat succulent, enlarged at the nodes; leaves opposite, blades entire, slightly inequilateral, the larger ones 1.1–1.4 cm. long and 0.6–0.8 cm. broad on petioles 3 to 6 mm. long; upper leaves reduced and relatively elongated becoming spatulate or rhombic-spatulate; stipules lanceolate to linear-lanceolate, usually 2- to 3-parted, divisions sometimes linear-subulate, tardily deciduous; involucres dimorphic: (1) involucres cylindric-campanulate, about 3 mm. long, 0.8 mm. wide at the base to 1.0 or 1.2 mm. wide at the top, glabrous outside and pubescent inside, margins of the lobes ciliate-pubescent; glands small, 0.2–0.3 mm. in diameter, without petaloid appendages; stamens few, abortive; stamineal bracts distinct, branching, involucre mostly filled with the fleshy gynophore; (2) involucres

[1] Wheeler, L. C. *Euphorbia Subgenus Chamaesyce in Canada and the United States.* Rhodora **43**: 97–154, 168–205, 223–286. 1941.

hemispherical to hemispherical-campanulate, lobes fimbriate-ciliate on the margins; glands 4, stipitate, appendaged; glands and petaloid appendages 1.3–1.5 mm. long and 0.8–1.5 mm. wide, appendages usually constituting from ⅔ to ¾ of the total dimensions, appendages yellowish-white; stamens fertile; stamineal bractlets divided near the summit, pubescent; fruit glabrous, angular, large (5–6 mm. long and 4–5 mm. broad), widest a little above the base and tapering to the blunt apex which may approach 2 mm. in width, reflexed when mature, gynophore glabrous; seeds 3.8–4.5 mm. long, ca. 2 mm. broad near the distal end, gradually tapering through about three-fourths of their length, then more abruptly tapering and attenuate into a caruncle 0.5–0.8 mm. long; seed flattened, but non-angular and with a smooth seed-coat.—Type: *Waterfall* and *Goodman's* 4519 from drifting sand, north of the Cimarron River, near Highway no. 281 on the Waynoka sand dunes, Woods County, Oklahoma, Oct. 11, 1947. Type deposited in the Bebb Herbarium of the University of Oklahoma. Isotypes are in the Gray Herbarium, and in the herbaria of the New York Botanical Garden and the Missouri Botanical Garden.

Associates of *Euphorbia carunculata* include: *Reverchonia arenaria, Oenothera latifolia* and *Heliotropium convolvulaceum.* Where the sand dunes are more stabilized *Calamovilfa gigantea* is common, it being the principal stabilizer. Associated with this stage, or its transition to higher stages, we found *Lygodesmia rostrata* abundant, at least locally. *Calamovilfa* gives way to such climax species as *Andropogon scoparius, A. Hallii* and *Artemisia filifolia* on the more stabilized dunes.

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A DANGEROUS WEEDY POLYGONUM IN PENNSYLVANIA

Edwin T. Moul

In the late summer of 1946 a specimen of a strange *Polygonum* for Pennsylvania was sent for identification to Dr. John M. Fogg, Jr. at the University of Pennsylvania Herbarium. It was found growing in a neglected nursery belonging to Mr. Joseph B. Gable at Stewartstown, York County, Pennsylvania, where it had become a most troublesome weed.

It has been identified as *Polygonum perfoliatum* L., a native of India, China, Manchuria, Korea, Formosa, Japan and the Philippines. The identity has been checked with specimens at the Academy of Natural Sciences of Philadelphia and specimens at the Gray Herbarium at Harvard University.

The plant made its first appearance in the nursery about ten years ago, when some holly seeds sent from Japan were planted and it came up with the holly. The owner of the nursery became interested in the plant and allowed it to grow. Later in the season, when it produced brilliant china-blue berry-like "fruit," he became more interested in it for its beauty and allowed it to reproduce itself the next year. Since then it has vigorously spread from its original place until it now covers much of the area between the trees in the orchard, the edges of the lanes and the spaces between the nursery rows. Where it has become established it maintains an almost pure stand, choking all other herbaceous plants.

This *Polygonum* belongs to the *Echinocaulon* group. It is a long trailing vine growing to a maximum length of 10 to 12 feet. It forms a dense tangled mat over the ground or climbs into the lower branches of any available tree. The cover thus formed kills all herbaceous plants over which it trails. Thick mats of *Lonicera japonica* Thunb. were completely dead under the tangle of *Polygonum. Sambucus canadensis* L. and species of *Rubus* were overgrown and killed by the competition. The tangle in the lower branches of apple trees was thick enough to cover the leaves and cause some defoliation. It seems obvious that the leaves of the *Polygonum* are the chief factor in this struggle for existence as the roots are few in number, fibrous, weak and do not penetrate the soil very deeply.

The stem of the plant is weak, but wiry and covered with recurved spines about 3 mm. long. It is difficult to collect a proper specimen due to the manner in which the stems intertwine and hook themselves together. The leaves are deltoid, placed alternately on the stem and becoming smaller toward the apex of the plant. At each node is a perfoliate cordate stipule varying from 1 cm. to 2 cm. in diameter.

The flowers are in small capitate heads. The flower-color is usually pink, although there is a wide variation in the intensity

of the color. When the achenes are mature, the calyces turn a bright china-blue in color and make a very attractive cluster against the yellowing foliage of the plant in autumn. The achenes are large, measuring 4 mm., globose and shiny black in color. They are shed quite readily when the plant is touched and many of them had germinated and new plants had started to grow in October of 1946 when I visited the nursery. Mr. Jack Swartley, who showed me around, stated that these new plants would be killed by the frost, but some seeds would winter over in the litter and germinate next spring.

Realizing that this plant had become a serious pest, Mr. Gable tried to eradicate it by using a commerical weed killer, 2-4D, but it proved ineffective. The concentration used is not known. The Japanese beetle (*Popillia japonica*) does more damage to the weed during the time of its active above-ground feeding than the weed killer, but after the peak of beetle infestation has passed the plants recover rapidly and continue to grow and reproduce through the mild weather of autumn until late October or early November.

To date, the *Polygonum* has spread to only two neighboring farms. Vigorous and prompt action should be taken to eradicate it while it is confined to this small area, lest it become a worse pest than Japanese honeysuckle, with no hope of ever completely wiping it out.

Inquiries addressed to most of the larger herbaria have yielded only one reference to a former collection of this plant in the United States. Dr. Joseph Ewan of the U. S. D. A. Plant Industry Station in Beltsville, Maryland, writes that "*Polygonum perfoliatum* did appear at the Glenn Dale Introduction Garden, Maryland, at a site where *Meliosa* seed from Nanking, China, had been planted. The *Meliosa* failed to grow but the *Polygonum* appeared; this now comprises W. Cowgill, Feb. 15, 1937, and March 5, 1937, but was evidently eradicated by the usual weeding activities and did not persist at this location."

Specimens of the plant are deposited at the University of Pennsylvania Herbarium.

Botany Department,
University of Pennsylvania

A LIST OF FRESHWATER ALGAE FROM NEW BRUNSWICK

Herbert Habeeb and Francis Drouet

That very little has been done with the freshwater algae of New Brunswick is common knowledge. Accordingly, while home on vacation, one of the authors managed to make a fairly representative collection of freshwater algae from the vicinity of Grand Falls, New Brunswick. The collections were made during the period extending from the latter part of June to mid-August, 1947—all within an easy walking distance of Grand Falls. The collection numbers listed below are those of Herbert Habeeb. On several occasions Herbert Habeeb was accompanied in the field by the Grand Falls High School Principal, Mr. John Caldwell, an ardent student of the microscope.

The determinations were all made by Francis Drouet. The absence of such genera as Mougeotia and Oedogonium from the list does not indicate that they are absent from the local flora, but that they were not found in fruit or ripe fruit—and hence were indeterminable. The diatom, desmid, and Chara specimens remain to be determined, and it is hoped that they will be included in a future list of additional species.

Complete sets of the specimens are in the possession of the Cryptogamic Herbarium, Chicago Natural History Museum, and in the herbarium of Herbert Habeeb at Grand Falls.

Anacystis rupestris (Lyngb.) Dr. & Daily. Collection Numbers: 10063. 10206 in part. Habitats: Wet ground, brookside. Amidst moss on canyon wall.

Anabaena inaequalis B. & F. 10081. Dried-up water course in a pasture with sterile *Oedogonium*.

Amphithrix janthina B. & F. 10159 in part. 10310 in part. Scraped off boulder in stream, and off wet ledge.

Apiocystis Brauniana Näg. 10305. With sterile *Oedogonium* sp. in a rock-ledge pool.

Batrachospermum moniliforme Roth. 10028. 10036. Anchored in cool moving water.

Botrydium granulatum (L.) Grev. 10161 in part. 10182. 10186 in part. Baseball diamond. Damp mud of road rut.

Calothrix juliana B. & F. 10034. Crust covering clinkers in brook.

Calothrix parietina B. & F. 10033 in part. 10143 in part. 10145 in part. 10152. 10302. On rocks in brook. Covering usually xerophytic ground. On bottom of dry rock-ledge pool.

Chamaesiphon polonicus (Rostaf.) Hansg. 10159 in part. Scraped off boulder in stream.

Chaetophora elegans (Roth) Ag. 10024. Gelatinous spots on rocks in brooklet.

Chlorococcum humicola (Kütz.) Rabenh. 10127. On dead wood in shade.

Chlorotylium cataractarum Kütz. 10033 in part. 10153 in part. 10222. Crust on rocks in brooklets.

Cladophora crispata (Roth) Kütz. 10050. 10061. 10151. 10183 in part. 10209. 10213. 10308. 10313 in part. Amidst stones and rocks in shallow parts of brooklets. Attached to sides of rock-ledge pools.

Cladophora glomerata (L.) Kütz. 10270. Attached to ledge in a rapid-flowing streamlet.

Cylindrospermum licheniforme B. & F. 10118. 10124. On ground. Shaded lawn.

Cylindrospermum majus B. & F. 10170. On damp mud in a swamp.

Cylindrospermum muscicola B. & F. 10298. On damp lawn.

Dichothrix Baueriana B. & F. 10261. Wet ledge at edge of rock pool.

Dichothrix gypsophila B. & F. 10148 in part. 10149. 10265 in part. 10267 in part. In trickling water on wet ledges.

Draparnaldia plumosa (Vauch.) Ag. 10037. 10134. 10225 in part. On rocks in moving water. In a water barrel at a spring.

Fischerella ambigua (B. & F.) Gom. 10162. Exposed soil of ball diamond.

Gloeocapsa alpicola (Lyngb.) Born. 10057. 10283. 10314 in part. On blackish-colored wet to damp ledges, in shade.

Gloeocapsa membranina (Menegh.) Drouet & W. A. Daily, **comb. nov.** *Pleurococcus membraninus* Menegh.,[1] Mem. R. Accad. Torino, ser. 2, **5** (Sci. Fis. e Math.): 34. 1843. *Protococcus membraninus* Menegh. in Kütz., Tab. Phyc. **1**: 5. 1846. *P. rufescens* Kütz., ibid. p. 9. 1846. *Pleurococcus rufescens* Bréb. in Kütz., loc. cit. 1846. *Chroococcus membraninus* Näg., Gatt.

[1] Duplicate specimens of the original material of this species collected by Meneghini in the Euganean springs at Abano near Padova were studied in the collections of the Rijksherbarium at Leiden, the Naturhistoriska Riksmuseet at Stockholm, and the Herbarium of the University of California at Berkeley. They contain the same species as treated by Daily in Amer. Midl. Nat. 27: 642 (1942) and by Drouet & Daily in Field Mus. Bot. Ser. 20: 148, footnote 2 (1943) under the name *Chroococcus rufescens* (Kütz.) Näg.—F. Drouet and W. A. Daily.

einz. Alg., p. 46. 1849. *C. rufescens* Näg., loc. cit. 1849. COLLECTION NUMBER: 10264 in part. In trickling water on ledge.

GLOEOCAPSA TURGIDA (Kütz.) Hollerb. 10208 in part. In scum on surface of shallow water, brookside.

GLOEOCYSTIS CONFLUENS (Kütz.) Richt. 10188. 10192. 10194. 10303. 10304. Surface of ledge in the shade. On usually xerophytic ground. In rock-ledge pool.

HYDROCOLEUM HOMOEOTRICHUM Gom. 10136 in part. 10256 (the phormidioid state). 10267 in part. Riverside ledge at waterline. On rocks in streams. In trickling water on ledge.

LYNGBYA OCHRACEA Gom. 10287. 10220. 10174. 10169. 10001. In cool slow water. In a swamp seepage.

MICROCOLEUS ACUTISSIMUS Gardn. 10106 in part. Sandy shore of the St. John River.

MICROCOLEUS PALUDOSUS Gom. 10104. 10105. 10106 in part. 10107. In ledge cracks and on sandy shore of the St. John River.

MICROCOLEUS VAGINATUS Gom. 10109. 10122. 10123 in part. 10132 (the phormidioid state). 10145 in part. 10164 (juvenile plants). 10167 (young plants and moss protonema). 10175. 10176. 10178 (young plants). 10185. 10190. 10228. 10275. 10297. 10299. 10321. On soil between buildings. On ground in shade. In mud puddles. In a ditch. On old roadways and in pathways. On usually xerophytic ground.

MICROSPORA STAGNORUM (Kütz.) Lagerh. 10243. With sterile *Bulbochaete* sp. and other *Algae* near the shore of a river.

MICROSPORA WITTROCKII (Wille) Lagerh. 10086. 10306. In rock-ledge pools.

NOSTOC COMMUNE B. & F. 10054. 10065 (parasitized plants). 10316 in part? Amidst moss on canyon wall. Off damp ledge.

NOSTOC MICROSCOPICUM B. & F. 10049. 10314 in part. 10317. 10319. 10322. 10324 in part. Damp canyon walls.

NOSTOC MUSCORUM B. & F.? 10325. On moss covering relatively dry ledge.

OOCYSTIS SOLITARIA Wittr. 10264 in part. 10273 in part. In trickling water on ledge. In rock-ledge pool.

OSCILLATORIA FORMOSA Gom. 10171. In water of a swamp.

OSCILLATORIA TENUIS Gom. 10113 in part. 10142 (trichomes of various diameters). 10290. 10291. 10289 in part. Covering wet mud. On bottom in cool slow water.

OSCILLATORIA TENUIS Gom. var. NATANS Gom. 10183 in part. In a rock ledge pool with other *Algae*.

PHORMIDIUM AUTUMNALE Gom. 10093. 10156. 10263. In a springlet on a rock ledge. Film on a rock in a streamlet. On a wet ledge at the edge of a rock-ledge pool.

PHORMIDIUM FAVOSUM Gom. 10232. 10249. 10253. 10255. Covering other *Algae* in slow-moving water.

Phormidium incrustatum Gom. 10153 in part. 10309. Off rocks in stream. In trickling water on a ledge.

Phormidium papyraceum Gom. 10094. Scraped off ledges at brookside.

Phormidium Setchellianum Gom. 10012. 10245. In a brown gelatinous layer on a rock in moving water. With sterile *Spirogyra* sp. in shallow water.

Phormidium tenue Gom. 10237. On *Chara* sp. in slow-moving water.

Phormidium uncinatum Gom. 10296. From shallow muddy part of a brooklet.

Plectonema Nostocorum Gom. 10051. 10064. 10206 in part. In a rock-ledge pool. In a moist limy deposit on mosses of canyon wall. Wet ground, brookside.

Plectonema purpureum Gom. 10241. On *Batrachospermum* sp. in fast moving water.

Protococcus viridis Ag. 10120. 10189. On tree trunks in the shade.

Protosiphon botryoides (Kütz.) Klebs. 10160. 10161 in part. On the exposed soil of the ball diamond.

Scenedesmus armatus (Chod.) G. M. Smith. 10273 in part. In a rock-ledge pool.

Scenedesmus dimorphus (Turp.) Kütz. 10205. On rocks in a ledge pool.

Schizothrix Friesii Gom. 10276 in part. 10277. 10281. In ledge cracks and on mosses of damp ledges.

Schizothrix Heufleri Gom. 10230. Purple coloring on a vertical sand bank.

Schizothrix lacustris Gom. 10148 in part. 10218. On a rock in a brooklet. On a ledge with trickling water.

Schizothrix Stricklandii Dr. 10131 in part. 10143 in part. 10223. Between rocks and stones in a path. On usually xerophytic ground.

Scytonema figuratum B. & F. 10196. 10272. 10323. 10314 in part? On moss of canyon wall. On damp ledge and shaded canyon wall.

Scytonema guyanense B. & F. 10320. On ground beneath an overhanging ledge.

Scytonema Hofmannii B. & F. 10067. 10324 in part. On mosses and damp canyon wall.

Scytonema Myochrous B. & F. 10066. 10150. 10265 in part. 10276 in part. In cracks and on moss of damp ledge. Scraped off damp ledge.

Scytonema ocellatum B. & F. 10328. 10131 in part. On canyon wall. Between rocks and stones in a pathway.

Sphaerella lacustris (Girod) Wittr. 10056. 10279. Coloring red the bottom and sides of a rock-ledge pool. Pink color scraped off a rock ledge.

Spirogyra porticalis (Müll.) Cleve? 10133. In shallow part of a spring.

Spirogyra varians (Hass.) Kütz. 10029. In a brooklet.

Stichococcus subtilis (Kütz.) Klerck. 10021. 10110. 10111 (various growth forms). 10112. 10128. 10157. 10163. 10186 in part. 10282. 10316 in part. On brick, concrete and bone in shade. On rock ledge in wet to dry water courses in the canyon. On damp ground, old roadway and ball diamond.

Stigeoclonium lubricum (Dillw.) Kütz. 10040 in part. 10042. 10043. 10295. Amidst rocks in shallow water. In a brooklet.

Symploca Muscorum Gom. 10055. 10117. Covering moss on damp canyon wall. On moss and grass roots at river's edge.

Tetraspora gelatinosa (Vauch.) Desv. 10087. Gelatinous masses in a spring.

Trebouxia Cladoniae (Chod.) G. M. Smith. 10181. In damp shade on ledges and base of tree trunks.

Trentepohlia aurea (L.) Martius. 10053. 10280. A rusty fuzz on shaded canyon walls.

Tribonema bombycinum (Ag.) Derb. & Sol. 10005. 10017. In slow shallow water.

Ulothrix zonata (Web. & Mohr) Kütz. 10000. 10004. 10011. 10019. 10020. 10027. 10041 in part. 10045. 10069. 10083. 10085. 10091. 10092. 10096. 10097. 10098. 10099. 10103. 10226. 10247 in part. On rocks etc. in brooks and rivers.

Urococcus insignis Berk. & Hass. 10059. Green spots on the sides of a rock-ledge pool.

Urococcus Hookerianus Berk. & Hass. 10259. Surface of a ledge below waterline.

Vaucheria geminata (Vauch.) DC. 10023. 10078. 10082. 10200. 10201 in part. 10235. 10252. In a brooklet. In the water hole of a pasture. Matted on grass in a spring. In slow shallow river water.

Vaucheria sessilis (Vauch.) DC. 10115. 10135. 10155. 10300. In slow shallow river water. On wet gravel in hillside seepage. On wet sandy ground in the shade.

Vaucheria terrestris (Vauch.) DC. 10125. 10129. On shady damp ground.

Grand Falls, New Brunswick, and the
Chicago Natural History Museum

Another New Hampshire Station for Subularia.—Inasmuch as there are few stations reported for *Subularia aquatica* L. in southern New Hampshire, and, as it seems to be near its southern limit in eastern North America in this part of the state, it appears advisable to report one more locality for the species.

Subularia aquatica L. has its southernmost known station in New Hampshire at Massabesic Lake in Auburn, Rockingham County. It occurs in southern New Hampshire also at Bradford Pond in the western part of Merrimack County and at the station herein reported 20 miles northeast of Lake Massabesic at Pleasant Pond in Deerfield, Rockingham County. In October and November 1947 when the water was very low, it was found in abundance along the sandy shore to a limited extent above the water line but more often submerged in not more than a foot of water.

Presumably, the most northerly station in the state from which *Subularia aquatica* has been reported is Franconia, though there is a "Base of White Mountains" station reported by William Oakes which is too vague to be located exactly. The known stations in the state are predominantly clustered around Lake Winnepesaukee. In addition to the aforementioned localities, collections or valid reports indicate the presence of this aquatic in the following places in New Hampshire. Grafton Co.: Holderness, Ashland; Carroll Co.: Tuftonboro, Wolfeboro, Effingham, Wakefield; Belknap Co.: Laconia, Gilmanton; Merrimack Co.: Andover.

The data on the distribution of *Subularia aquatica* were obobtained from the journal Rhodora and from the collections of the Gray Herbarium, the New England Botanical Club, and the University of New Hampshire. Specimens of the Pleasant Pond Collection, *Joanne Flint*, no. 90, are deposited in the herbarium of the University of New Hampshire.—Joanne Flint and A. R. Hodgdon, University of New Hampshire

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